

Butterflies of Tioman Island, West Malaysia, with the Descriptions of New Subspecies

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Plau Tioman, the largest island in the Tioman Island Group, lies some 20 miles east off West Malaysian mainland, accompanying Plau Aru, Plau Pemangil and many other small islands. The Island Group has been well known in its conspicuous endemism in butterflies, especially in the subspecific differences between populations of the Island Group and those of Malaysian mainland or Sundaland.

Among the nine specialists of the butterflies who visited these islands from 1916 to the present, WILCOCKS had discovered a new endemic species, which was described as *Hasora wilcocki* by ELIOT (1970), and STUBBS and HISLOP had made a good series of collections, in which ELIOT (1978) recognized 177 species including many new subspecies. ELIOT (1980) added 30 species to the butterfly fauna of Plau Tioman based on BRETT-DAVIS collection, of which 26 were new to the Tioman Island Group.

The author twice visited Plau Tioman, in May 1980 and August 1981, and made butterfly collection between Kampong Lalang and Kampong Tekek at the west coast and along a path connecting Kampong Tekek of the west coast with Kampong Juara of the east coast from sea level to the highest altitude of 330 m. In spite of his short visits to the island, the author was able to find some unrecorded butterflies from the island, some of which are thought to be new subspecies of Malayan or continental species. According to ELIOT (1978), the butterflies of the Tioman Island Group are characterized by the "increased melanism", especially in the family Pieridae and in the females of the family Lycaenidae, and they are under the influence of Bornean fauna. The author generally accepts his opinion with some exceptions mentioned later.

Some pierid and danaid specimens from Plau Tioman in the author's collection were already illustrated by YATA and MORISHITA in TSUKADA (1981). They are included in this paper, because there were no special references in their texts concerning the records on these butterflies from the island.

In the following lines the author will record the butterflies newly known from Plau Tioman and describe 11 new subspecies. The detailed data on the localities are omitted in the list except for new taxa. The materials treated in this paper were collected by the author himself and are preserved in the author's private collection, including the type specimens.

Papilio demolion demolion (CRAMER, 1776)

3 ♂ 1 ♀, 23 and 25 August 1981. The inner margin of the yellowish band on the upperside of forewing tends to concave distally at vein 1 while straight in mainland or Bornean examples.

蝶と蛾 *Tyô to Ga*, 33 (3, 4): 168-184, 1983

Papilio memnon agenor LINNAEUS, 1758

6 ♂, 10 and 11 May 1980; 22 and 24 August 1981. Tornal markings on the underside of hindwing show much more varieties than those in mainland examples, some specimens show exactly same markings with those in the mainland subspecies *agenor*, and some are very similar to the Bornean subspecies *memnon* with greyish scaling.

Appias paulina grisea MOULTON, 1923

(YATA. In TSUKADA, 1981, Pl. 65 No. 13-15)

23 ♂ 29 ♀, 8-12 May 1980; 22-28, August 1981. A male figured by YATA (1981) has creamy-white ground colour on the upperside of both wings, while the other males were indistinguishable from the mainland subspecies *distanti* or Bornean subspecies *athena* in ground colour.

*****Pareronia valeria lutescens* (BUTLER, 1879)**

(YATA. In TSUKADA, 1981, Pl. 18 No. 2)

11 ♂, 10 and 12 May 1980; 23 and 25-27 August 1981. As mentioned by ELIOT (1978) on the specimens from Plau Aur, some specimens from Plau Tioman have also pale blue ground colour on the upperside, but generally they are indistinguishable from mainland specimens. The discovery of the female example are awaited.

*****Eurema simulatrix tiomanica* subsp. nov.**

(Figs. 1-4: YATA. In TSUKADA, 1981, Pl. 7 No. 14-15, as subspecies *tecnessa*)

Black marginal border on the upperside of hindwing broad and not so wavy, especially in the females, while in subspecies *tecnessa* narrower and waved. Two blackish proximal markings in the discoidal cell on the underside of forewing more closely situated each other than those in subspecies *tecnessa* or *littorea*. Subbasal spots on the underside of hindwing faint and always absent in discoidal cell, while distinct and seldom absent in discoidal cell in subspecies *tecnessa* or *littorea*. Submarginal row of the blackish dots on the underside of hindwing fainter.

Forewing length: ♂ 21.5-22.5 mm; ♀ 22.5-25.5 mm

Holotype: ♂, Lalang-Tekek 9 May 1980.

Paratypes: 2 ♂ 4 ♀, same locality as the holotype, 8, 10 and 12 May 1980.

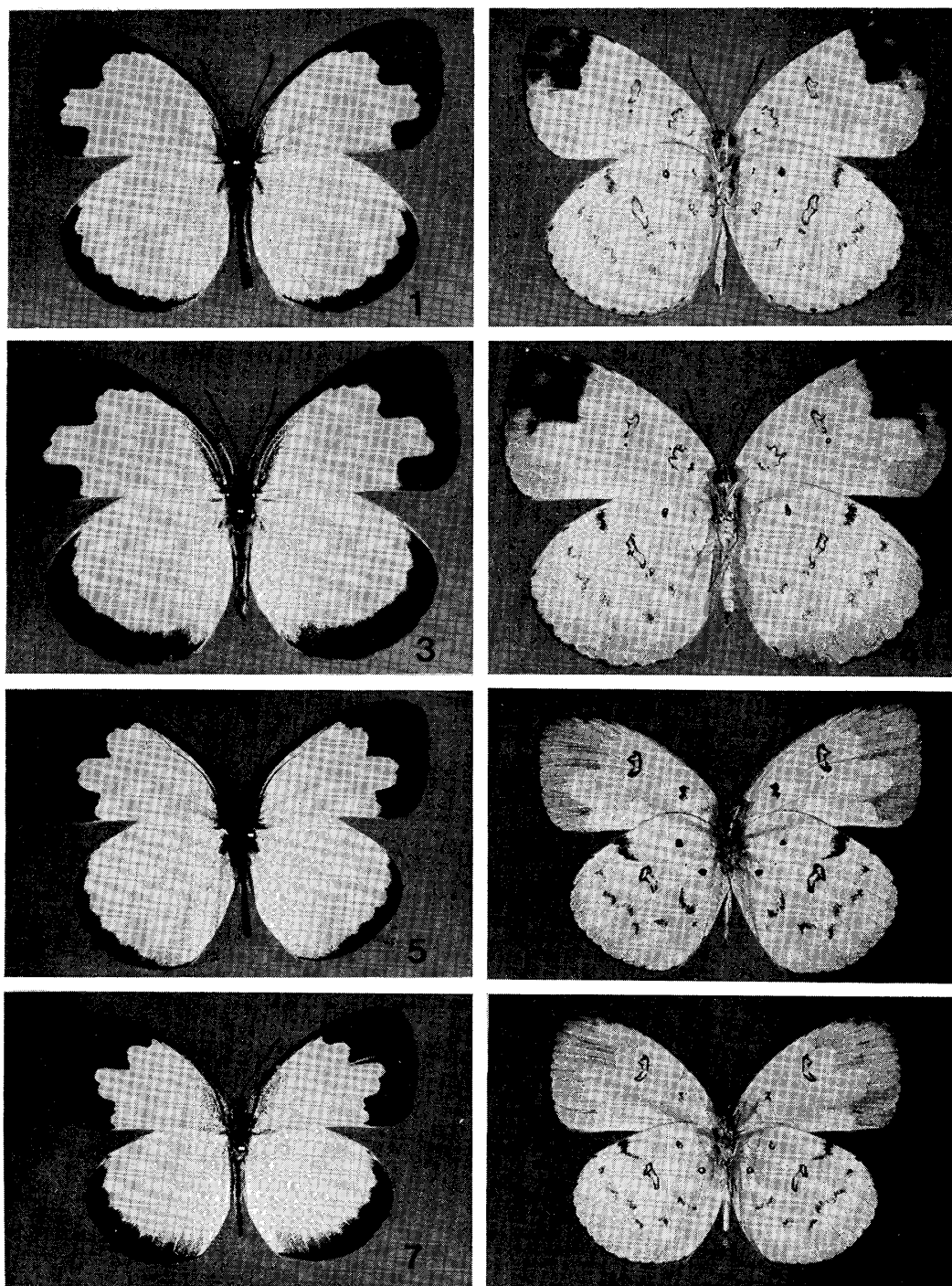
****Eurema andersoni andersoni* (MOORE, 1886)**

(Figs. 5-8: YATA. In TSUKADA, 1981, Pl. 9 No. 3)

14 ♂ 2 ♀, 11 and 12 May 1980; 23 and 25-28 August 1981. On the underside of hindwing, cell spot absent and submarginal row of blackish dots weakly marked, while in examples from West Malaysia or Borneo they are present and distinct.

* New records from the Tioman Islands Group.

** New records from Plau Tioman. These have been already known from other islands.

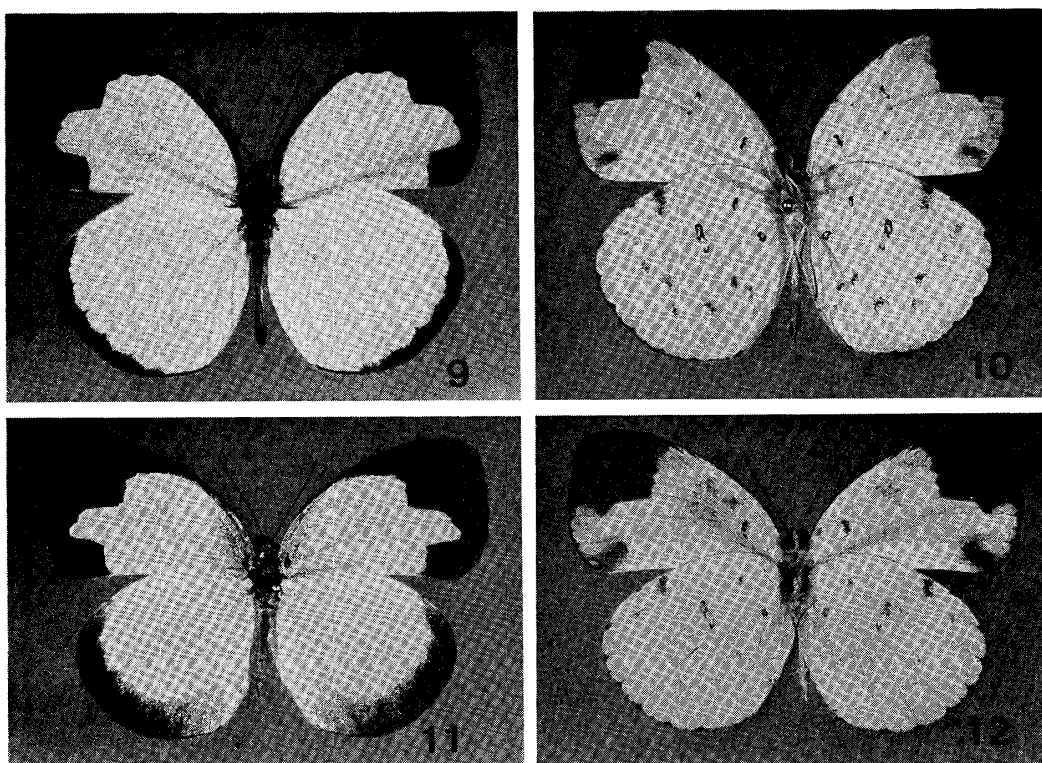


Figs. 1-4. *Eurema simulatrix tiomanica* subsp. nov. 1: ♂, holotype. 2: Ditto, underside. 3: ♀, paratype. 4: Ditto, underside. Figs. 5-8. *Eurema andersoni andersoni* (MOORE). 5: ♂. 6: Ditto, underside. 7: ♀. 8: Ditto, underside.

*****Eurema sari sodalis* (MOORE, 1886)**

(Figs. 9-12: YATA. In TSUKADA, 1981, Pl. 8 No. 5-6)

8 ♂ 2 ♀, 9 May 1980; 25, 27 and 28 August 1981. Submarginal row of blackish dots on the underside of hindwing more weakly marked than those in mainland examples.



Figs. 9–12. *Eurema sari sodalis* (MOORE). 9: ♂. 10: Ditto, underside. 11: ♀. 12: Ditto, underside.

Ideopsis gaura kajangensis subsp. nov.

(Figs. 13–14)

Darkened in ground colour and generally more heavily marked, especially on the marginal area on the upperside of forewing than subspecies *distanti*, *eudra* and *daos*.

Forewing length: ♀ 48.0–52.0 mm.

Holotype: ♀, Tekek-Juara, 26 August 1981.

Paratypes: 2 ♀, same locality as the holotype, 23 and 27 August 1981.

**Euploea algea mentriesii* C. & R. FELDER, 1860

(MORISHITA. In TSUKADA, 1981, Pl. 130 No. 10)

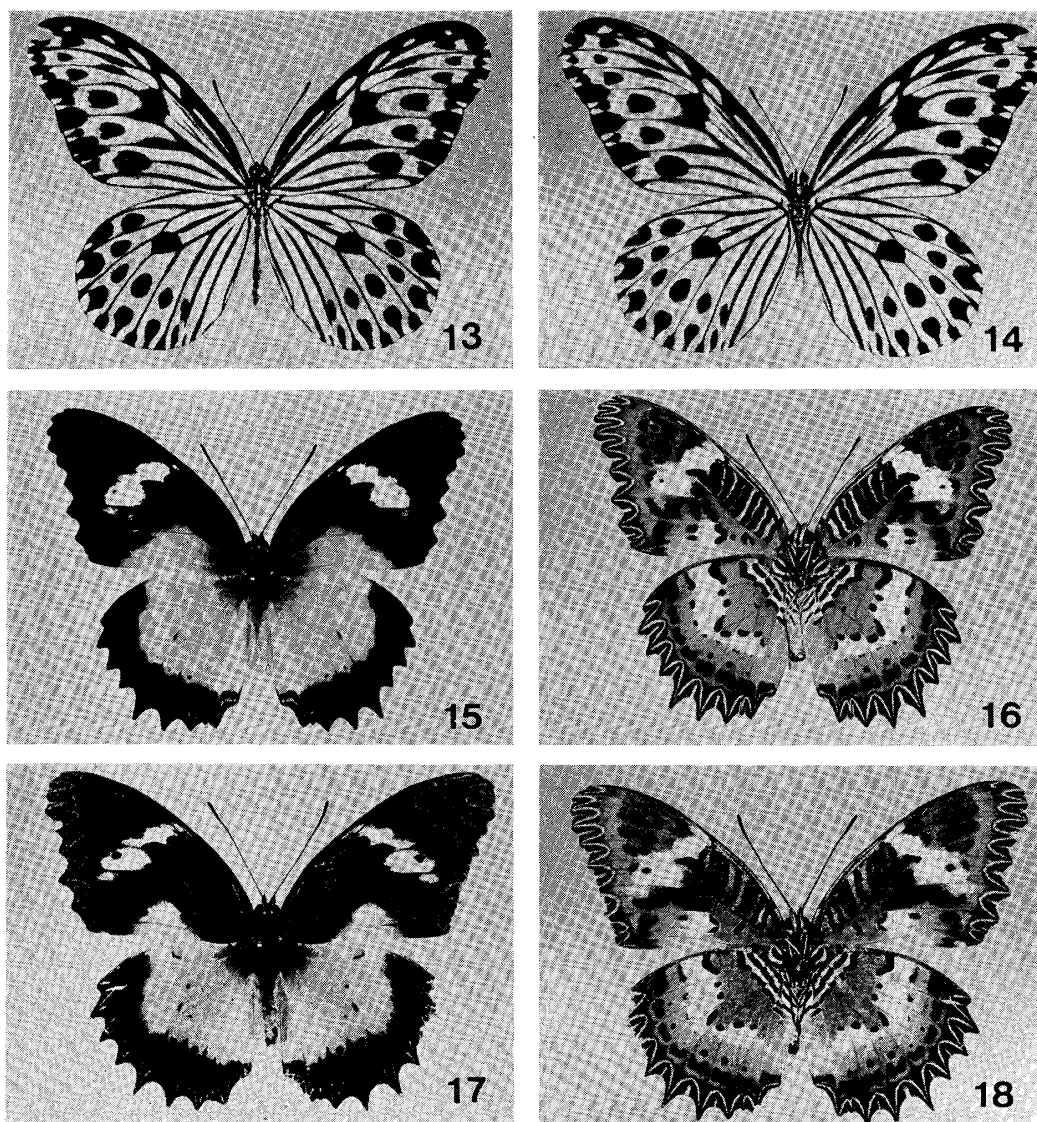
4 ♂ 5 ♀, 8–12 May 1980; 22 and 24–26 August 1981.

**Mycalesis perseus cepheus* BUTLER, 1867

1 ♂, 28 August 1981.

Melanocyma faunula faunula (WESTWOOD, 1850)

6 ♂, 11 May 1980; 23–25 August 1981. There are no differences between these specimens and mainland subspecies *faunula*. This species is considered one of a few representatives of Indo-Chinese elements on the island.



Figs. 13–14. *Ideopsis gaura kajangensis* subsp. nov. 13: ♀, holotype. 14: Ditto, underside. Figs. 15–18. *Cethosia hypsea elioti* subsp. nov. 15: ♂, holotype. 16: Ditto, underside. 17: ♀, paratype. 18: Ditto, underside.

**Ariadone isaeus isaeus* (WALLACE, 1896)

1 ♀, 10 May 1980.

***Cethosia biblis pemangilensis* ELIOT, 1978

15 ♂ 1 ♀, 9 and 11 May 1980; 23–28 August 1981. Identical with the subspecies from Plau Pemangil and Plau Aur.

Cethosia hypsea elioti subsp. nov.

(Figs. 15–18)

As mentioned by ELIOT (1978) on a female from Plau Aur, females from Plau Tioman have also slightly heavier markings than those of subspecies *hypsinia*. In

the males, discal blackish spots on the upperside of hindwing ill-developed compared with subspecies *hypsina* and *hypsea*. In both sexes, submarginal row of blackish markings on the underside of hindwing stout and roundish in shape while in subspecies *hypsina* and *hypsea* linear.

Forewing length: ♂ 38.0–42.0 mm; ♀ 40.0–45.5 mm.

Holotype: ♂, Tekek-Juara, 26 August 1981.

Paratypes: 2 ♂ 1 ♀, Lalang-Tekek, 4 and 12 May 1980; 5 ♂ 2 ♀, same locality as the holotype, 23 and 25–27 August 1981.

The subspecific name was dedicated to Lt. Col. J. N. ELIOT for his great contribution to the studies of Malaysian butterflies.

*****Hypolimnus anomala anomala* (WALLACE, 1869)**

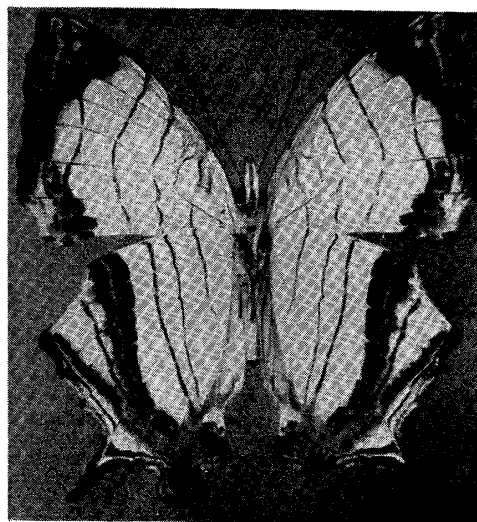
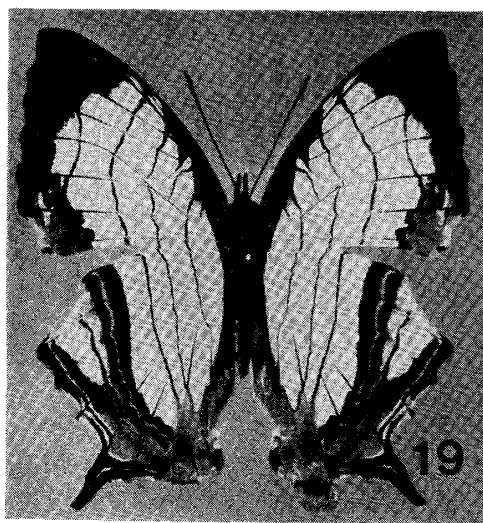
7 ♂ 4 ♀, 8–10, 12 May 1980. In this series, f. *nivalis* not contained.

***Cyrestis nivea pigmentosa* subsp. nov.**

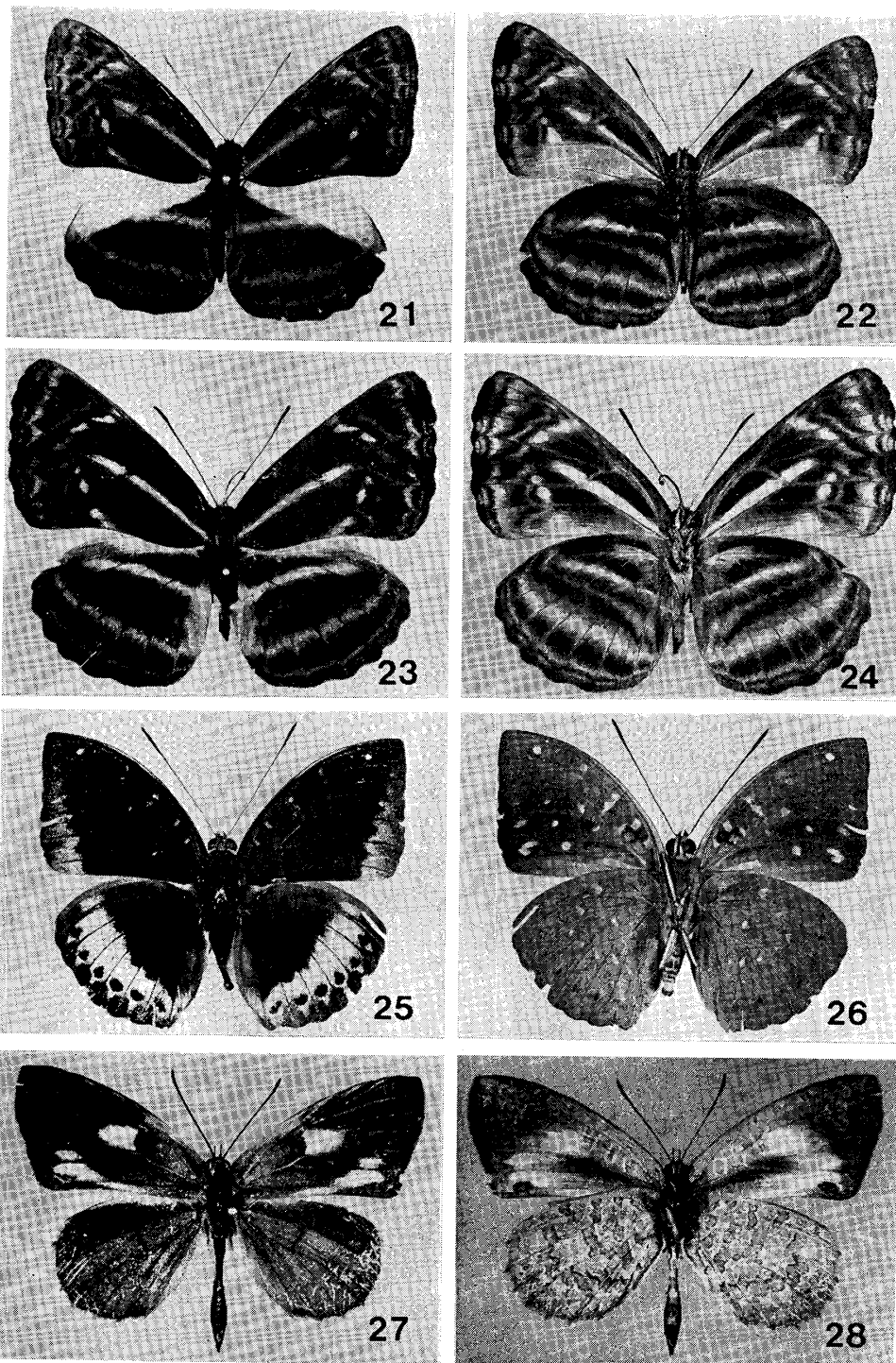
(Figs. 19–20)

At first glance, it seems intermediate between *nivea nivea* and *lutea martini* but easily recognized as species *nivea* by the same width of black transverse lines on the upperside of forewing, while broaden at costal end in species *lutea*. On the upperside of forewing, black transverse lines stouter and black marginal border broader than those in subspecies *nivea* and *borneensis*. On the upperside of hindwing, black transverse lines stouter than those in subspecies *nivea* and *borneensis*. Black marginal border broad and white area between black marginal border and submarginal black band absent in space 4, while the area present in other subspecies. Orange tornal markings broader than those in subspecies *nivea* and *borneensis*. Black dorsal margin also heavier than those in *nivea* and *borneensis*.

Forewing length: ♂ 26.0–26.5 mm; ♀ 27.0 mm.



Figs. 19–20. *Cyrestis nivea pigmentosa* subsp. nov. 19: ♂, holotype. 20: Ditto, underside.



Figs. 21–24. *Neptis ilira tiole* subsp. nov. 21: ♂, holotype, 22: Ditto, underside. 23: ♀, paratype. 24: Ditto, underside. Figs. 25–26. *Lexias dirtea iwasakii* subsp. nov. 25: ♂, holotype. 26: Ditto, underside. Figs. 27–28. *Miletus ancon solitaria* subsp. nov. 27: ♂, holotype. 28: Ditto, underside.

Holotype: ♂, Lalang-Tekek, 10 May 1980.

Paratypes: 1 ♀, same locality and datum as the holotype; 2 ♂, Tekek-Juara, 26 August 1981.

Neptis ilira tiolet subsp. nov.

(Figs. 21–24)

ELIOT (1978) mentioned very dark two females from Plau Tioman. Male examples known for the first time reveal the same tendency with females and the author here describe as new subspecies. Upperside, cell streak on the forewing and post-discal band on both wings obsolescent and narrower while in subspecies *cindia* they are rather distinct and broader in both sexes.

Forewing length: ♂ 26.0–26.5 mm; ♀ 28.5–29.5 mm.

Holotype: ♂, Lalang-Tekek, 10 May 1980.

Paratypes: 1 ♀, same locality as the holotype, 22 August 1981; 1 ♂ 1 ♀, Tekek-Juara, 24 and 27 August 1981.

The subspecific name is anagram derived from the name of Lt. Col. J. N. ELIOT who contributed to the studies of the Tioman Islands butterflies.

**Neptis magadha charon* BUTLER, 1867

1 ♀, 28 August 1981. Submarginal row of white spots on both wings and distal white band on the hindwing smaller and narrower than those of mainland examples.

**Pantoporia paraka paraka* (BUTLER, 1879)

4 ♂ 3 ♀, 8, 10 and 12 May 1980; 22 August 1981.

**Lexias dirtea iwasakii* subsp. nov.

(Figs. 25–26)

Apical spot on the upperside of forewing whitish as in Bornean subspecies *dirtea* and distinct while in subspecies *merguia* it is tinged with yellow and obscure. Submarginal bluish band on the upperside of hindwing strongly tinged with purple and more markedly narrowed than that in subspecies *merguia* and *dirtea*, hence the black spot in the submarginal band in space 8 intraceable, while traceable in other subspecies. Bluish spots in spaces 2 to 4 on the underside of forewing small and round, while in subspecies *dirtea* they tend to form C-shape.

Forewing length: ♂ 42.5–43.5 mm.

Holotype: ♂, Tekek-Juara, 25 August 1981.

Paratype: 1 ♂, same locality as the holotype, 26 August 1981.

The subspecific name was dedicated to the late Mr. Masamichi IWASAKI, who was the author's best friend and a keen odontologist in Faculty of Science, Kyoto University, died suddenly in his 25th youth.

**Eulaceura osteria kumana* FRUHSTORFER, 1913

1 ♂, 22 August 1981.

***Polyura hebe plautus* (FRUHSTORFER, 1898)

2 ♂ 1 ♀, 23, 25 and 27 August 1981. ELIOT (1978) recorded this species from Plau Aur as subspecies *chersonesia*. Specimens examined in this study have broader

marginal border on the upperside of hindwing in both sexes than that in subspecies *chersonesia*. It seems better to identify them as subspecies *plautus* described from Singapore.

**Miletus gaesa gaesa* (DE NICEVILLE, 1890)

1 ♂, 22 August 1981.

**Miletus ancon solitaria* subsp. nov.

(Figs. 27–28)

An oblique whitish band on the upperside of forewing small in size and completely divided at vein 3 as in subspecies *siamensis*, while in Bornean subspecies *gigas* larger in size and it is never completely divided. The band is rather similar in shape to that in subspecies *siamensis* but the upper portion beyond the discoidal cell smaller in size and cell-based triangular in shape and the lower portion in spaces 1 and 2 elongated in length.

Forewing length: ♂ 18.0 mm.

Holotype: ♂, Lalang-Tekek, 12 May 1980.

The species *ancon* occurs Indo-China and Neomalaya except for Peninsular Malaysia and Sumatra, where it is replaced by sibling species *gigantes*. A male taken from Plau Tioman completely agrees with the features of the species *ancon* and the species is here recorded from West Malaysia for the first time. The discovery of *ancon* from Plau Tioman is very interesting in considering the zoogeographic relationship between *ancon* and *gigantes*, and the composition of the butterfly fauna of Tioman.

**Allotinus fallax apus* DE NICEVILLE, 1895

1 ♀, 24 August 1981.

**Allotinus subviolaceus alkamah* DISTANT, 1886

2 ♀, 25 August 1981.

**Allotinus taras sarrastes* FRUHSTORFER, 1913

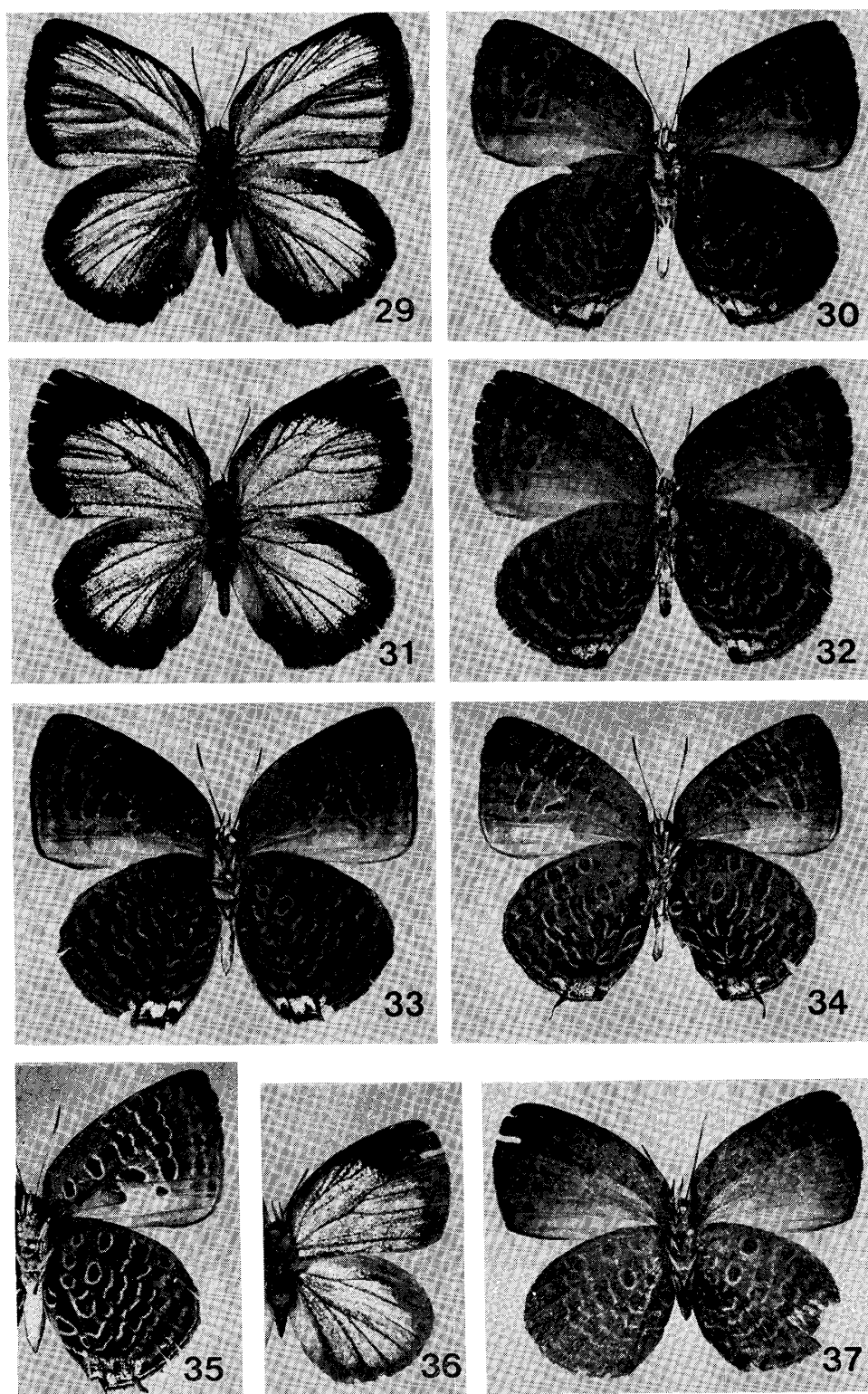
1 ♂ 3 ♀, 23, 24 and 26 August 1981.

**Catochrysops panormus exiguus* (DISTANT, 1886)

2 ♂, 8 and 12 May 1980.

Nacaduba pactolus odon FRUHSTORFER, 1916

2 ♀, 23 and 26 August 1981. CORBET (1938) mentioned that a male in his collections is not different from mainland examples. Females examined in this study have extremely broad black outer margin on the upperside of both wings, especially on the hindwing compared with West Malaysian and Bornean examples. But on the underside, no significant differences were found between them.



Figs. 29–32. *Arhopala catori parvimaculata* subsp. nov. 29: ♂, holotype. 30: Ditto, underside. 31: ♀, paratype. 32: Ditto, underside. Fig. 33. *Arhopala epimuta epiala* CORBET, ♂, underside. Fig. 34. *Arhopala elopura elopura* H. H. DRUCE, ♂, underside. Fig. 35. *Arhopala athada athada* (STAUDINGER), ♂, underside. Figs. 36–37. *Arhopala cardoni* CORBET. 36: ♂. 37: Ditto, underside.

**Anthene lycaenina miya* (FRUHSTORFER, 1916)

1 ♂, 10 May 1980.

**Arhopala epimuta epiala* CORBET, 1941

(Fig. 33)

1 ♂, 25 August 1981.

Arhopala catori parvimaculata subsp. nov.

(Figs. 29–32)

Upperside ground colour violet blue, tinged with lighter blue than that of mainland subspecies *catori*, with marginal border of the same width with *catori*. In both sexes, basal and central cell spots on the underside of forewing small and obscure. Central cell spot on the underside of hindwing small and never touching disco-cellular veins. Central and distal spots in space 7 on the underside of hindwing small and obscure, with central one usually absent, while these spots bigger and distinct in subspecies *catori*.

Forewing length: ♂ 20.5–22.5 mm; ♀ 20.5–21.5 mm.

Holotype: ♂, Tekek-Juara, 25 August 1981.

Paratypes: 56 ♂ 39 ♀, same locality as the holotype, 23–28 August 1981.

**Arhopala elopura elopura* H. H. DRUCE, 1894

(Fig. 34)

2 ♂, 26 and 27 August 1981.

**Arhopala athada athada* (STAUDINGER, 1889)

(Fig. 35)

1 ♂ 1 ♀, 27 and 28 August 1981.

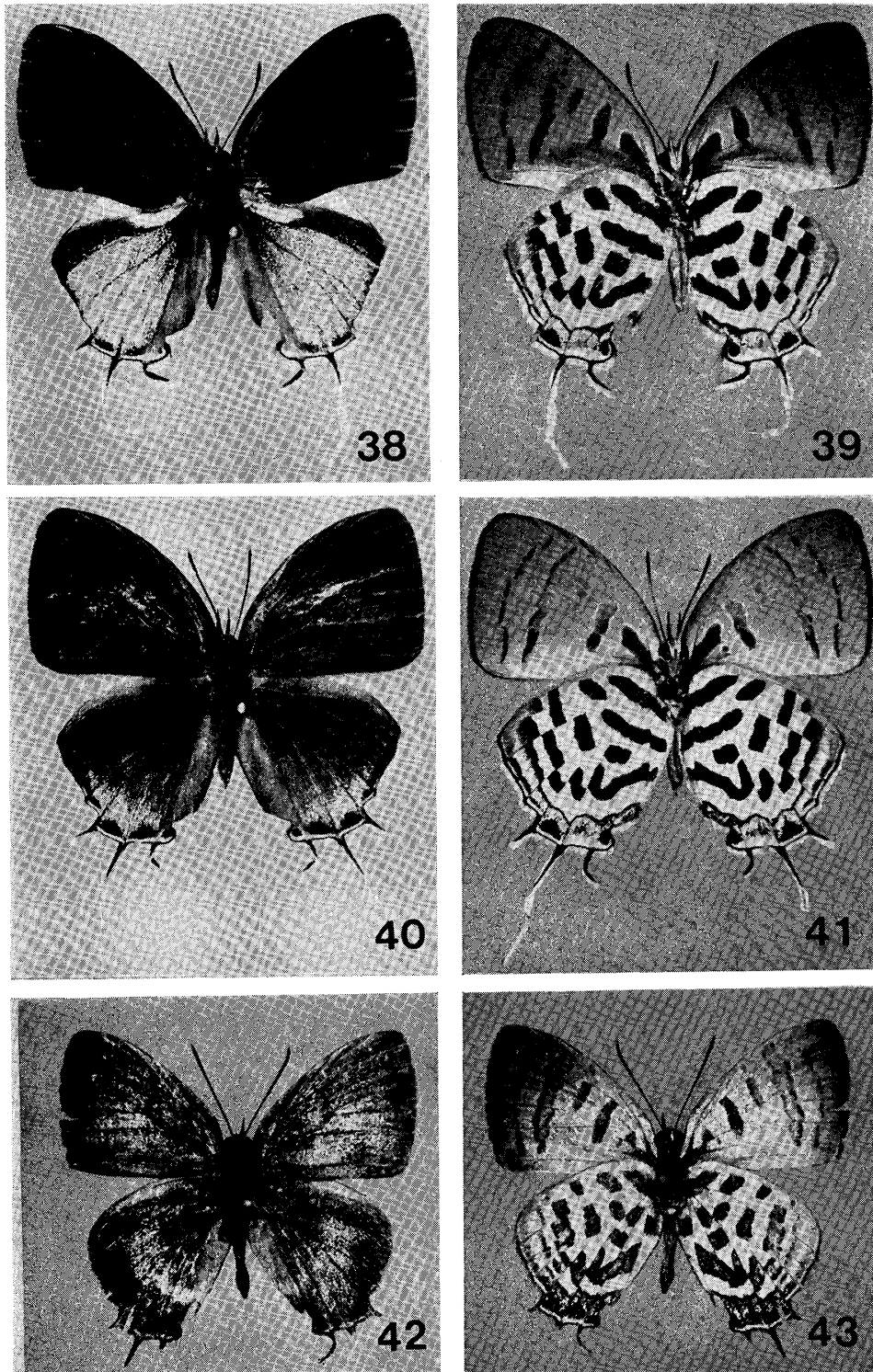
**Arhopala cardoni* CORBET, 1941

(Figs. 36–37)

1 ♂, 28 August 1981. Although a male examined in this study is rather different in the shape of the postdiscal spots on the underside of the hindwing from the original description of *Arhopala cardoni* by CORBET 1941 nor a figure by ELIOT (1978), this specimen agrees well with the features of species *cardoni* in the following aspects: forewing length of about 16 mm; broad marginal border of about 2 mm at tonus and 5 mm at apex on the upperside of forewing; and tornal green area on the underside of hindwing absent. The author tentatively identifies this example as this species.

**Flos flugida singapura* (DISTANT, 1885)

1 ♂, 26 August 1981.



Figs. 38–41. *Drupadia ravindra caerulea* subsp. nov. 38: ♂, holotype. 39: Ditto, underside. 40: ♀, paratype. 41: Ditto, underside. Figs. 42–43. *Drupadia niasica cuboidea* subsp. nov. 42: ♀, holotype. 43: Ditto, underside.

**Neomyrina nivea periculosa* FRUHSTORFER, 1913

1 ♂, 27 August 1981.

***Drupadia ravindra caerulea* subsp. nov.**

(Figs. 38–41)

Compared with mainland subspecies *moorei*, ground colour on the upperside of hindwing much greyish-tinged in males. A submarginal black line on the underside of hindwing becoming broader to form a quadrate spot in space 6 in both sexes.

Forewing length: ♂ 14.5–18.0 mm; ♀ 12.0–16.0 mm.

Holotype: ♂, Lalang-Tekek, 22 August 1981.

Paratypes: 4 ♀, same locality as the holotype, 11 May 1980; 7 ♂ 13 ♀, Tekek-Juara, 23–28 August 1981.

***Drupadia rufotaenia rufotaenia* (FURHSTORFER, 1912)**

1 ♂, 26 August 1981. Identical with subspecies *rufotaenia* but having broader blackish discal and postdiscal patches in spaces 1 to 3 on the underside of forewing.

****Drupadia niasica cuboidea* subsp. nov.**

(Figs. 42–43)

Discal portion on the upperside of both wings tinged with violet. Postdiscal markings on the underside of hindwing forming black quadrate spots as those in species *ravindra*, while obsolescent and marked only on its both proximal and distal borders in other subspecies.

Forewing length: ♂ 14.5 mm.

Holotype: ♂ Tekek-Juara, 27 August 1981.

****Dacalana vidura azyada* FRUHSTORFER, 1914**

8 ♂ 15 ♀, 11 May 1980; 25–28 August 1981.

****Tajuria cippus maxentius* FRUHSTORFER, 1912**

1 ♀, 10 May 1980.

****Deudorix elioti* CORBET, 1940**

1 ♀, 26 August 1981.

***Sinthusia malika amata* DISTANT, 1886**

1 ♀, 24 August 1981. Densely marked on the underside, compared with mainland examples.

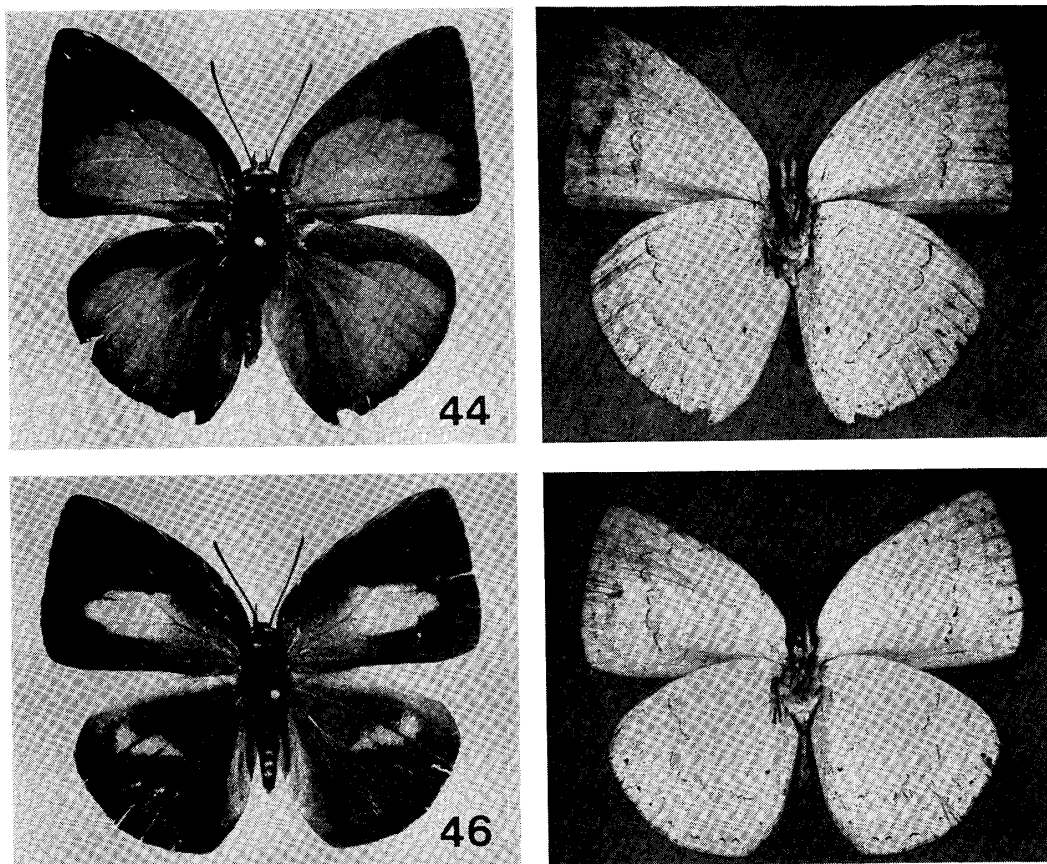
*****Curetis santana malayica* (C. & R. FELDER, 1867)**

3 ♂ 1 ♀, 12 May 1980; 22 and 24 August 1981.

***Curetis sperthis kawazoei* subsp. nov.**

(Figs. 44–47)

Upperside of forewing narrowly bordered at tornal margin compared with that of



Figs. 44–47. *Curetis sperthis kawazoei* subsp. nov. 44: ♂, holotype. 45: Ditto, underside. 46: ♀, paratype. 47: Ditto, underside.

subspecies *sperthis*. Orange discal patch on the upperside of female hindwing very small.

Forewing length: ♂ 20.0–21.0 mm; ♀ 19.0 mm.

Holotype: ♂, Tekek-Juara, 25 August 1981.

Paratypes: 1 ♂ 1 ♀, same locality as the holotype, 26 and 28 August 1981.

Subspecific name is dedicated to Mr. Akito KAWAZOE for his kind advices during the author's survey on the South East Asian butterflies.

**Bibasis harisa consobrina* (PLÖTZ, 1883)

2 ♀, 10 May 1980; 28 August 1981.

**Charmion ficulnea queda* (PLÖTZ, 1885)

1 ♂, 23 August 1981.

**Coladenia laximi sobrina* ELWES & EDWARDS, 1897

1 ♂, 11 May 1980.

**Iambrix stellifer* (BUTLER, 1879)

3 ♂, 23–25 August 1981.

**Isma protoclea iapis* (DE NICEVILLE, 1890)

2 ♂ 1 ♀, 11 May 1980; 24 and 27 August 1981. Spots in spaces 4 and 7 on the upperside of forewing absent, while present in mainland examples.

***Oriens gola pseudolus* (MABILLE, 1883)

6 ♂, 26 and 28 August 1981.

**Caltoris philippina philippina* (HERRICH-SCHÄFFER, 1869)

2 ♂, 8 May 1980; 25 August 1981. Superficially indistinguishable from Philippine examples except for its slight darker ground colour but in genital organs the shape of sociuncus slightly different.

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抄 録

ティオマン島の蝶類に関する新知見 (大久保 潔)

Tioman 島は, Malay 半島の西方約 20 マイルの海上に位置し, Aur 島 Pemangil 島等とともに, Tioman 群島を形成している. ELIOT (1978) は, 「マレー半島の蝶」第 3 版において, この群島の蝶相の特異性に注目し, WILCOCKS, STUBBS, HISLOP らの成果に基づき多数の新亜種を記載した.

著者は, 1980 年 5 月, および 1981 年 8 月の 2 回にわたり Tioman 島の蝶相を調査する機会を得, Tioman 島より未記録の 31 種および従来 Aur 島あるいは Pemangil 島より知られたが Tioman 島からは初記録の 9 種を確認することができた. 今回得られたもののうち, Malay 半島あるいは Borneo に産するものと明らかに区別できるものとして, 次の 11 新亜種を記載した.

Eurema simulatrix tiomanica subsp. nov.

Ideopsis gaura kajangensis subsp. nov.

Cethosia hypsea elioti subsp. nov.

Cyrestis nivea pigmentosa subsp. nov.

Neptis ilira tirole subsp. nov.

Lexias dirtea iwasakii subsp. nov.

Miletus ancon solitaria subsp. nov.

Arhopala catori parvimaculata subsp. nov.

Drupadia ravindura caerulea subsp. nov.

Drupadia niasica cuboidea subsp. nov.

Curetis sperthis kawazoei subsp. nov.

なお、これらのうち *Miletus ancon* は従来 Thailand および Borneo より知られていたが、今回 West Malaysia から初めて記録された。